Name: Answer Key Date:_____ Period:____

Probability and Statistics Practice Test

Find the probability.

Tiles with the letters from the word PROBABILITY are placed in a bag. Include the letter y as a vowel. What is the probability of selecting a vowel at random? Write your answer as a fraction and a percent.

$\frac{5}{11} = 45\%$

A bag contains 5 green marbles, 15 purple marbles, and 10 yellow marbles. In order to receive full credit, your must show all of your work and write your answers as a fraction and as a percent. (4 points)

What is the probability of selecting a green marble, replacing it, and then selecting another green marble?

$\frac{5}{30} \cdot \frac{5}{30} = \frac{25}{900} = \boxed{\frac{1}{36} = 3\%}$

What is the probability of selecting a yellow marble, not replacing it, and then selecting a green marble?

$\frac{10}{30} \cdot \frac{5}{29} = \frac{50}{870} = \boxed{\frac{5}{87} = 6\%}$

The dance committee wants to survey the students to find out what theme they want for the upcoming dance. Answer the following questions in as much detail as you can.

Population:	Sample:
7th and 8th grade students	40 students 20 - 7th grade 20 - 8th grade

What question should the dance committee ask on a survey to find the best results? Explain your reasoning.

_____

_____

_____

_____

How should we pick the students? Conduct a simple random survey. Explain how it is a SRS.

Put all 7th grade girls names in a hat. Do the same for the boys and the 8th grade. Pick 10 names from each hat. This is a SRS because each name has an equal chance of being selected and it is completely random

Are the two events dependent or independent? Explain.

Roll a red and a blue number cube.

Independent - 2 different number cubes

Randomly select a green sock and then another green sock from a drawer when you are getting ready for school.

Dependent - # of socks in the drawer has changed

Draw a double stem-and-leaf plot for the data.

(A) ~~28~~, ~~45~~, ~~41~~, ~~40~~, ~~45~~, ~~50~~, ~~33~~, ~~27~~, ~~35~~, ~~33~~, ~~46~~

(B) ~~45~~, ~~43~~, ~~39~~, ~~40~~, 50, ~~36~~, ~~44~~, ~~42~~, ~~21~~, 51, ~~49~~

(B)		(A)
1	2	7 8
9 6	3	3 3 5
9 5 4 3 2 0	4	0 1 5 5 6
1 0	5	0

mean: 41.8

mean: 38.4

Key: 21 = 1|2 | 7 = 27

If these were test scores, out of 50, who did better overall? How do you know?

The person on the left (B) did better because their average was greater, 41.8 versus 38.4.

If the first person wants to have an average of 40, what do they need to get on their next test?

$$\frac{28+45+41+40+45+50+33+27+35+33+46+x}{12} = 40$$

$$\frac{423+x}{12} = 40$$

$423 + x = 480$

$-423 \quad -423$

$x = 57$

It's not possible

Which measure of central tendency best describes the second set of data? Explain.

The median because the score of 21 could be considered an outlier.

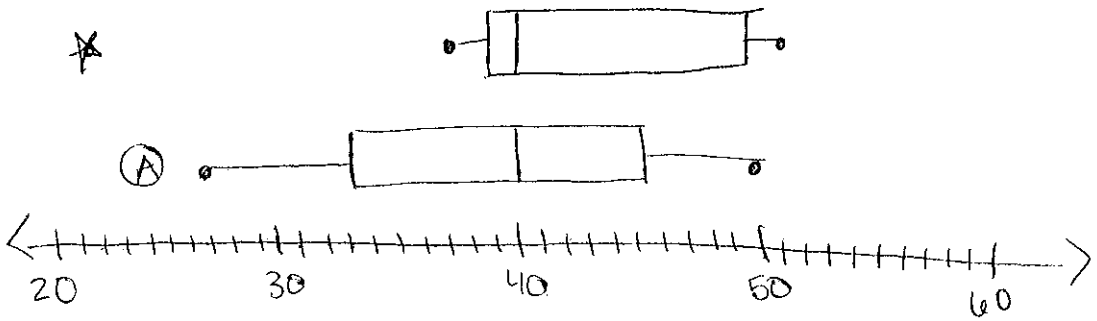
Create a double box-and-whisker plot to describe the data.

Ⓐ 27, 28, 33, 33, 35, 40, 41, 45, 45, 46, 50

Ⓑ 21, 36, 39, 40, 42, 43, 44, 45, 49, 50, 51

Ⓐ
min: 27
LQ 33
med: 40
UQ: 45
max: 50

Ⓑ
min: 21 36
LQ: 39 40
med: 42 43.5
UQ: 44 49
max: 50 51
outlier: 21



What conclusion can you make? Use vocabulary and percentages to justify your answer.